

## TWO FELT EARTQUAKES HIT NORTHEAST SOUTH CAROLINA

Two earthquakes were felt in the Pee Dee area on Friday September 22, 2006 at 11.22 UTC, (07.22AM EDT) and Monday September 25, 2006 at 05.44 UTC (05.44 AM EDT) (Figure 1).

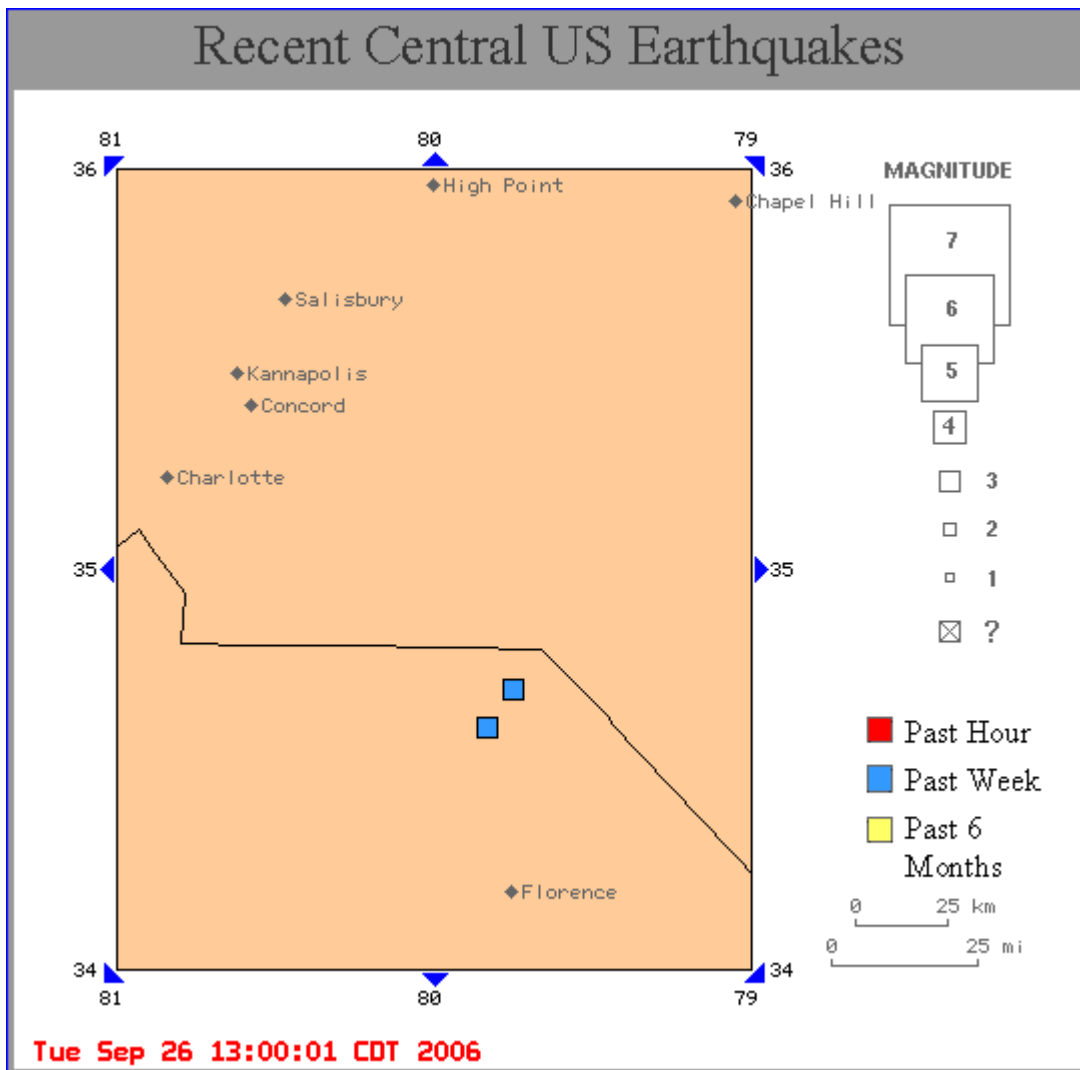


Figure 1: Location of Pee Dee earthquakes from USGS.

These earthquakes have been assigned preliminary magnitudes of 3.5 and 3.7 respectively by the US Geological Survey.

The USGS location parameters are:

2006. 09.22. 07. 22.01 (EDT) Mag.3.5 Lat.34.70 N, Long.79.75 W and

2006. 09. 25. 01.44 (EDT) Mag.3.7 Lat.34.60 N and Long. 79.83 W.

These earthquakes were well recorded on JSC and COW, two stations of the South Carolina Seismic network (SCSN). Several smaller aftershocks were also recorded. The phase data for these events are as follows.

1. JSC	2006.09.22.	11.22	.27.13 (e) D	42.82 (4)
COW			27.13 (e) U	42.67 (3)
2. JSC and COW		13.53		
3. JSC and COW		13.59		
4. JSC	2006.09.23.	17.08	55.90 D	09 12.56
COW			55.91 U	12.50
5. JSC	2006.09.25	05.44	48.02 D	
COW			48.02 U	
6. JSC	(NOISY)	06.21	08.93 U	25.04 (3)
COW	(NOISY)		08.93 D	25.48 (3)

## TECTONIC ASSOCIATION

In the accompanying map (Figure 2) we have plotted the locations of these events on an enlargement of Figure 1 from Hatcher et al., (1977), showing the Eastern Piedmont Fault System (EPFS) in the region between Columbia and the SC/NC border. Both the earthquakes lie in the vicinity of the EPFS.

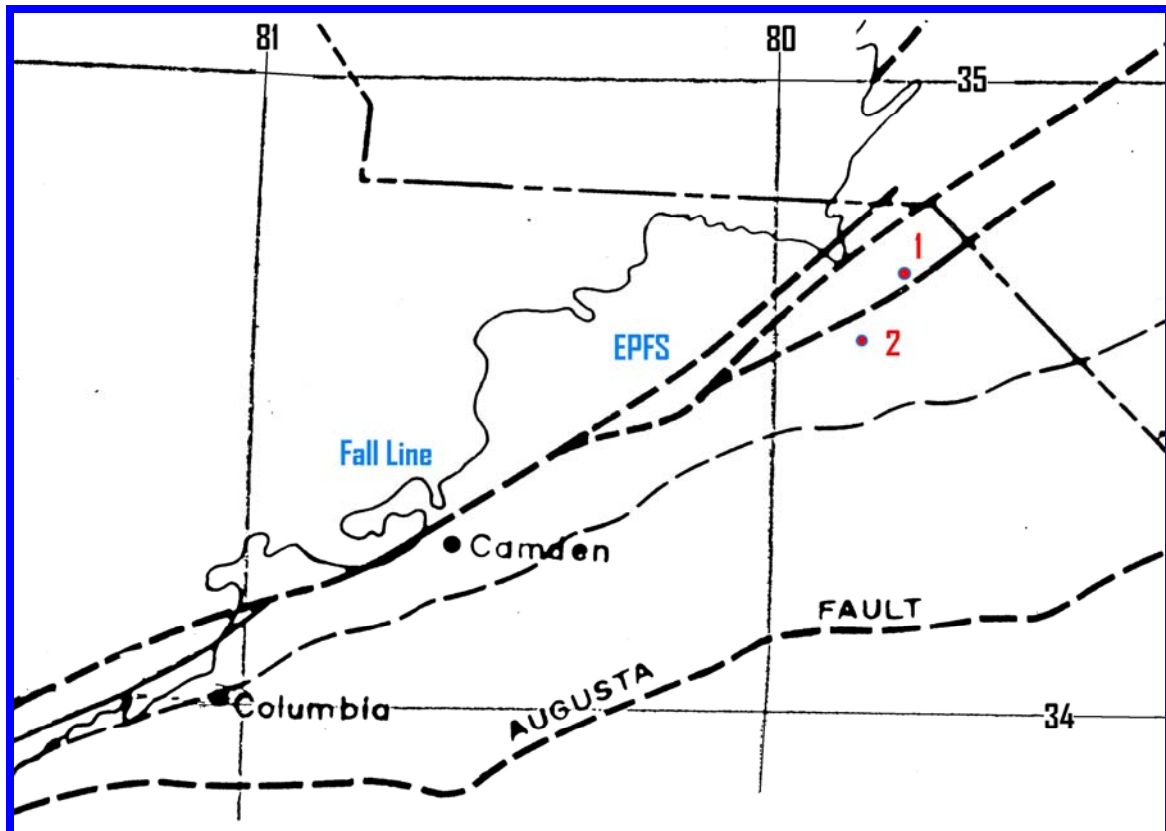


Figure 2: Location of Eastern Piedmont Fault System (EPFS) and the two Peedee earthquakes.

The isoseismal data (Figure 3) compiled by the USGS for the September 25 earthquake seems to have a preferred NE-SW orientation, with the largest intensity values along the EPFS. High intensity values were also obtained near the Coastal Plain overlap (Fall Line). Such amplification of seismic energy along the Fall Line is routinely observed for earthquakes in the Middleton Place Summerville Seismic Zone (MPSSZ), the source zone of the “Charleston” earthquakes. The high intensities observed near Gaffney and Blacksburg in Central South Carolina near the boundary with North Carolina, seem to be associated with the Kings Mountain Belt.

Historically, the EPFS has been the source of several earthquakes ( $M < 4.5$ ). The last felt earthquake along EPFS occurred on April 13, 1998 and was assigned a magnitude 3.9. It was located in the Camden – McBee area.

USGS Community Internet Intensity Map (19 miles NNE of Florence, South Carolina)  
 ID:tbaj\_06 01:44:22 EDT SEP 25 2006 Mag=3.7 Latitude=N34.60 Longitude=W79.83

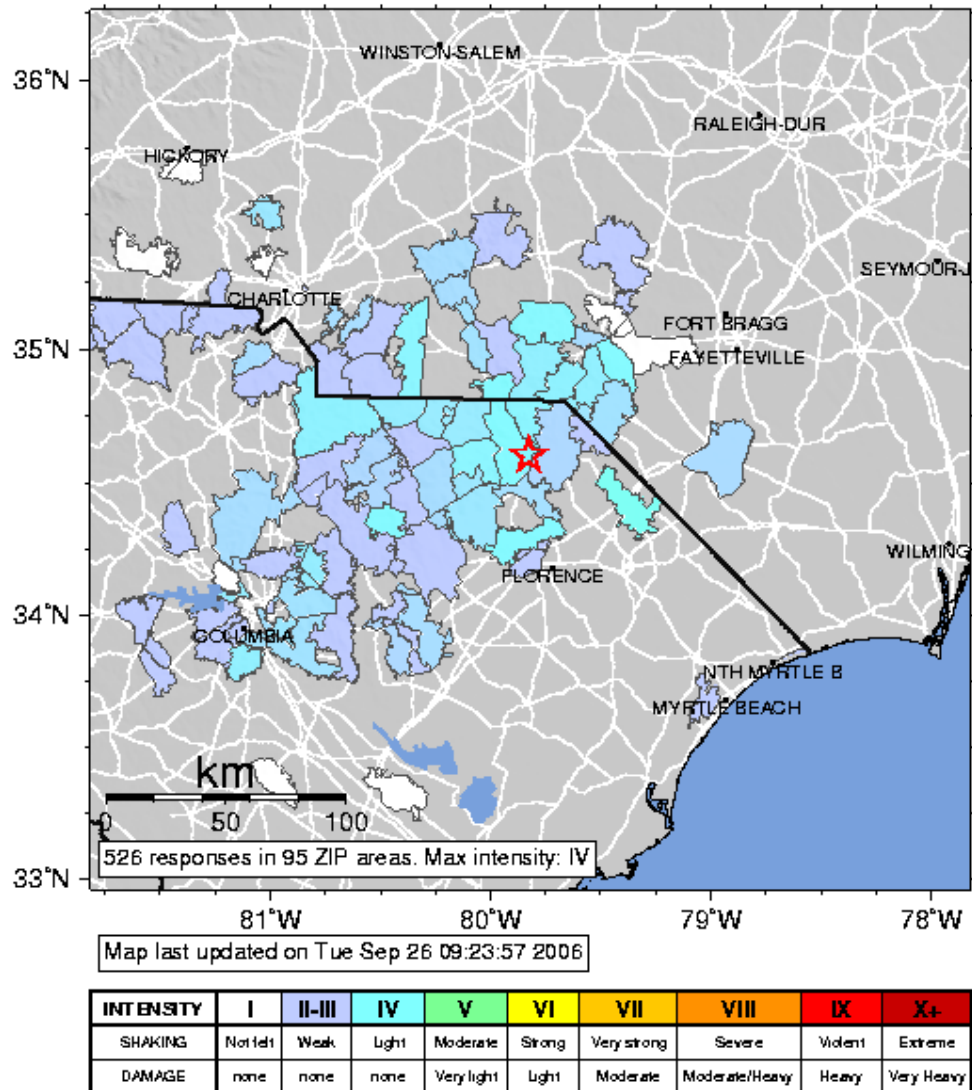


Figure 3: Intensity data for the earthquake on September 25, 2006 from USGS.